

SAN DIEGO  
MESA COLLEGE



## Formaldehyde Program

For Compliance with  
Federal and State  
Regulated Carcinogen Regulations

*Approved by Safety Committee  
April 20, 2017*

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## PURPOSE

### Purpose

The purpose of the Mesa College Formaldehyde program is to minimize or control formaldehyde exposure to prevent potential health effects from occupational exposure to formaldehyde, i.e. from formaldehyde gas, its solutions, and materials that release formaldehyde, by:

- Conducting exposure assessments and monitoring
- Establishing safe handling practices and controls to minimize exposure
- Providing health hazard information and training
- Maintaining an employee medical surveillance program (if needed)

### Scope

This document applies to all Mesa College Faculty and staff where potential exposure to formaldehyde exists.

Mesa's Formaldehyde program addresses:

- Exposure assessments and monitoring
- Regulated areas
- Hazard Communication
- Engineering Controls
- Protective Equipment
- Housekeeping
- Employee medical surveillance
- Emergencies
- Recordkeeping
- Reporting

## AUTHORITY CITATIONS

California Code of Regulations, Title 8, Section 5217 Formaldehyde.

## DEFINITIONS

**Permissible Exposure Level (PEL)** – Airborne concentration set by Cal/OSHA of 0.75 part formaldehyde per million parts of air (0.75 ppm) calculated as an 8-hour time weighted average (8-HR TWA). Exposures exceeding the PEL trigger the initiation of:

- Regulated areas that require controlled access and warning posters
- Training (annual)
- Use of respiratory protection
- Implementation of work practices and engineering controls to lower exposure below the PEL as feasible
- Employee medical surveillance

- Exposure monitoring (every 6 months)

**Short Term Exposure Level (STEL)** – Airborne concentration set by Cal/OSHA of 2 parts formaldehyde per million parts of air (2.0 ppm) calculated as a 15-minute time weighted average (15-min TWA). The STEL should not be exceeded at any time during the workday. Exposures exceeding the STEL trigger the initiation of:

- Regulated areas that require controlled access and warning posters
- Training (annual)
- Use of respiratory protection
- Implementation of work practices and engineering controls to lower exposure below the STEL as feasible
- Employee medical surveillance
- Exposure monitoring (annual)

**Action Level (AL)** – Airborne concentration set by Cal/OSHA of 0.5 part formaldehyde per million parts of air (0.5 ppm) calculated as an 8-hour time-weighted average (8-HR TWA). Exposures at or above the AL trigger the initiation of:

- Employee medical surveillance
- Exposure monitoring (every 6 months)

**Regulated Area** – Any area where the airborne concentration of formaldehyde exceeds either the PEL or STEL. Access is restricted to trained (see Section 6.2) authorized personnel.

## DIVISION OF RESPONSIBILITIES

Each supervisor will implement the program and serve as the Department program coordinator. The supervisors will consult and work with the VPA or Occupational, Environmental Health and Safety Coordinator (OEHS) in order to establish proper implementation of the Formaldehyde program.

To ensure effective implementation of this program, all personnel designated to carry out specific responsibilities are expected to know and understand the procedures outlined in this document and the specific contents of this the Formaldehyde program for their assigned facility.

### **Occupational, Environmental Health and Safety Coordinator**

The Mesa OEHS Coordinator is responsible for compliance to the Formaldehyde Standard within their site. They shall ensure the following:

- Assist Departments in conducting exposure assessments and monitoring for operations involving potential exposure to formaldehyde.

- Recommend safe handling practices and exposure controls such as ventilation and/or personal protective equipment.
- Ensure that health hazard information and training are readily available.
- Facilitate the initiation of employee medical surveillance if the Action Level, PEL or STEL is exceeded.
- Implementing the provisions of the Cal/OSHA formaldehyde standard, California Code of Regulations, Section 5217.

### **Dean/Supervisor/Manager**

The Dean/Supervisor/Manager has the primary responsibility for providing a safe work environment and for ensuring compliance with all elements of the Formaldehyde program within their own assigned work area. While these responsibilities can be delegated to other individuals within the work area, the Dean/Supervisor/Manager retains the responsibility of ensuring compliance and must ultimately assure that the duties are performed safely. If any responsibilities are delegated to other department personnel, the Dean/Supervisor/Manager must ensure that the designee is properly trained to carry out the designated task.

Supervisors are responsible for:

- Notifying the OEHS Coordinator when formaldehyde containing materials are used in a specific area.
- Ensuring chemical inventories and SDSs are routinely updated to reflect formaldehyde use.
- Ensuring that employees receive and understand the Safety Data Sheet for formaldehyde.
- Completing the required training and ensuring that all employees handling formaldehyde complete the required training at <https://sdccd-keenan.safecolleges.com/login>
- Formaldehyde Safety training (online course).
- Respiratory Protection (if applicable).
- Ensuring that safe handling practices and exposure controls such as ventilation and/or personal protective equipment are used by employees.
- Reporting any symptoms of formaldehyde exposure experienced by employees to the OEHS Coordinator.

### **Employees**

Each employee is responsible for the safe use of hazardous chemicals in the workplace. The employees must:

- Update chemical inventories and SDSs to reflect the use of formaldehyde.
- Review the formaldehyde SDS with their supervisor prior to handling the material or being exposed to airborne formaldehyde.
- Completing required training:
- Formaldehyde Safety training (online course)
- Respiratory Protection (if applicable)

- Using safe handling practices and exposure controls such as ventilation and/or personal protective equipment
- Reporting any symptoms of formaldehyde exposure to their supervisor and OEHS Coordinator.

### Students

While students are not specifically covered under the provisions of the regulations due to their non-employee status, students shall be made aware of chemical health and safety hazards in laboratories. Blatant disregard for provisions of this program will result in dismissal from the laboratory or other areas where hazardous chemicals are present.

## EXPOSURE

### Exposure Limits & Requirements Summary

Formaldehyde Airborne Level	Type of Limit	Exposure Duration	CAL-OSHA Requirements
At or above 0.1 ppm	Exposure Threshold	Any period of time	Annual formaldehyde training
At or above 0.5 ppm	“Action” Level (AL)	8-hour time weighted average	Same as above plus : Employee medical surveillance Periodic exposure monitoring
At or above 0.75 ppm	Permissible Exposure Limit (PEL)	8-hour time weighted average	Same as above plus : Establish and Post Regulated Areas
At or above 2.0 ppm	Short-Term Exposure Limit (STEL)	15 minute time weighted average	Use respiratory protection Implement work practice and engineering controls to lower exposure below the PEL and STEL as feasible

### Exposure Monitoring

- Initial monitoring will be performed in areas where there is potential for employees to be exposed at or above the Action Level or at or above the STEL.
- This monitoring will be repeated each time there is a change in production, equipment, process, personnel, or control measures which may result in new or additional exposure to formaldehyde.
- If the employer receives reports of signs or symptoms of respiratory or dermal

conditions associated with formaldehyde exposure, the employer shall promptly monitor the affected employee's exposure.

- If the initial, or any subsequent, monitoring determines that the employee is exposed at or above the Action Level, monitoring will be repeated at least every 6 months.
- If the last monitoring determines that the employee is exposed at or above the STEL, monitoring will be repeated at least once a year under worst conditions.
- Periodic monitoring may be discontinued if results from two consecutive sampling periods taken at least 7 days apart show the employee exposure is below the action level and the STEL.
- Within 15 days of receiving the results, the OEHS Coordinator will notify the affected employees and supervisors of the results.
- The results will be posted in the affected areas in which the monitoring took place
- Representative monitoring will be taken as equivalency for all job classifications for any shift within the affected areas.

## LABELING

### Labeling Containers of Formaldehyde

All containers of formaldehyde, at any concentration, must be labeled. This label must include, at a minimum:

**Formaldehyde**  
**Danger:**  
**MAY CAUSE CANCER**  
**CAUSES SKIN, EYE, AND RESPIRATORY IRRITATION**  
**DO NOT BREATHE VAPOR DO NOT GET ON SKIN**

If the container also has a specimen of other potentially infectious material, it must also be labeled "BIOHAZARD".

Containers must be kept closed at all times to reduce the formaldehyde vapors in the air.

### Regulated Areas

Posting in areas where the concentration of airborne formaldehyde exceeds either the PEL or the STEL must display signs at all entrances with the following information:

**DANGER**  
**FORMALDEHYDE**  
**MAY CAUSE CANCER**  
**CAUSES SKIN, EYE, AND RESPIRATORY IRRITATION**  
**AUTHORIZED PERSONNEL ONLY**

Access will be limited to authorized personnel only, who have been trained to recognize the hazards of formaldehyde.

## CONTROLS AND PPE

### Engineering Controls

Where feasible, general and local exhaust ventilation systems such as laboratory hoods, down draft systems, air curtains, and snorkels must be used to reduce and maintain employee exposures to formaldehyde at or below the PEL and the STEL.

### Work Practice Controls

Work practices that reduce the source of exposure or minimize the potential for formaldehyde to become airborne must be implemented whenever possible.

### Emergency Equipment

There must be an emergency eyewash and shower in the work areas when there is the potential for splashing.

### Personal Protective Equipment

Employers shall comply with the provisions of Sections 3380, 3382, 3383 and 3384. When protective equipment or clothing is provided under these provisions, the employer shall provide these protective devices at no cost to the employee and assure that the employee wears them.

Hand Protection - Butyl gloves are recommended when handling 37% or greater concentration of formaldehyde mixed with phenol, or when immersion of the hands is anticipated.

- Disposable nitrile gloves (8 mils thick) can be used when solely handling formaldehyde or formalin solutions.
- Users must consult with glove manufacturer's permeation guide charts to ensure proper glove selection.

Eye Protection - Goggles with a face shield and chemical resistant apron must be worn when formaldehyde is being poured or when there is potential for splashing.

Respiratory Protection - If monitoring shows that PEL or STEL is exceeded, the employee will be required to wear a full-face respirator with formaldehyde cartridges, until the exposure levels can be reduced with engineering controls or work practices.



- When air purifying respirators are used, the cartridges must be replaced after three (3) hours of use, or at the end of the work-shift, whichever is sooner, unless the cartridge contains a NIOSH approved end-of-service indicator to show when breakthrough occurs.
- All requirements under section g of the Formaldehyde Standard 5217 must be met.

Protective Clothing – Protective clothing must be used to prevent formaldehyde exposure and is provided at no cost to the employee.

- Contaminated protective clothing and equipment must be decontaminated prior to reuse.
- No contaminated clothing may be taken home.
- Disposable clothing that is impermeable to liquids may be used and disposed of as hazardous waste if contaminated with any chemicals. Disposable clothing may not be reused. If disposable clothing is used it needs to be disposed of as solid medical waste.
- Containers for contaminated clothing and equipment shall have labels and signs containing the following:

**DANGER**  
**FORMALDEHYDE CONTAMINATED CLOTHING AND EQUIPMENT**  
**MAY CAUSE CANCER**  
**CAUSES SKIN, EYE AND RESPIRATORY IRRITATION**  
**DO NOT BREATHE VAPOR DO NOT GET ON SKIN**

- Any personnel who launders, cleans or repairs clothing and equipment shall be notified of formaldehyde's potentially harmful effects and procedures to prevent exposure and safely handle contaminated equipment.
- Only personnel trained in recognizing the hazards of formaldehyde are allowed to remove contaminated materials from rooms in which formaldehyde is used.

## TRAINING

### Participation

The employer shall assure that all employees who are assigned to workplaces where there is exposure to formaldehyde participate in a training program, except that where the employer can show, using objective data, that employees are not exposed to formaldehyde at or above 0.1 ppm, the employer is not required to provide training.

### Frequency

Employers shall provide such information and training to employees at the time of initial

assignment and whenever a new exposure to formaldehyde is introduced into their work area. The training shall be repeated at least annually.

### **Training content**

The training is offered at <https://sdccd-keenana.safecolleges.com/login> and shall include:

- A discussion of the contents of the Formaldehyde regulation 5217 and the contents of the Safety Data Sheet.
- The purpose for and a description of the medical surveillance program required by this standard, including:
- A description of the potential health hazards associated with exposure to formaldehyde and a description of the signs and symptoms of exposure to formaldehyde.
- Instructions to immediately report to the employer the development of any adverse signs or symptoms that the employee suspects are attributable to formaldehyde exposure.
- Description of operations in the work area where formaldehyde is present and an explanation of the safe work practices appropriate for limiting exposure to formaldehyde.
- The purpose for, proper use of, and limitations of personal protective clothing and equipment.
- Instructions for the handling of spills, emergencies, and clean-up procedures.
- An explanation of the importance of engineering and work practice controls for employee protection and any necessary instruction in the use of these controls.
- A review of emergency procedures including the specific duties or assignments of each employee in the event of an emergency.

## **HOUSEKEEPING AND SPLILLS**

### **Housekeeping**

Preventative maintenance of equipment must be undertaken to provide periodic inspection of equipment and to minimize accidental chemical spills or leaks.

### **Spills**

All spills must be cleaned up promptly. Spill equipment should be readily available to clean up small incidental spills of formaldehyde or its dilutions or other liquids that may contain formaldehyde, i.e. cadaver liquids.

For small spills:

- Cover spill with formaldehyde solidifier/neutralizer
- Sweep solid material into a waste container
- Label waste container with both hazwaste label and a label in adherence to section 6

- of this program
- Have waste container hauled away within 90 days.

If a large spill occurs (more liquid than what the spill kit can handle):

- Employees are not to clean up the spill.
- Immediately evacuate the area, and close any doors.
- Alert others not to enter the area.
- Contact your Supervisor and/or OEHS Coordinator for assistance in cleaning up the spill.
- Do not reenter the area until the area has been cleared by responders or the OEHS Coordinator.

## MEDICAL SERVEILANCE

### Medical Surveillance

Medical surveillance is required for all employees exposed to formaldehyde at or above the Action Level or exceeding the STEL:

- Who develop signs and symptoms of overexposure to formaldehyde.
- Who require the use of respirators.
- For all employees exposed to formaldehyde during emergencies.

If an employee requires medical surveillance, the OEHS coordinator or Supervisor will notify the employee and facilitate enrollment in a medical surveillance program.

If the employee has developed signs and symptoms related to formaldehyde exposure, they should seek medical attention immediately and notify their supervisor and OEHS Coordinator.

The examination shall include a medical and work history, physical examination and pulmonary function test in accordance with the provisions under California Code of Regulations, Title 8, and Section 5217, (I) Medical Surveillance. An employee work history and copy of the standard and Appendices A, C, D, and E shall be provided to the examining physician.

Where medical removal or restrictions are recommended by a physician, the employee may seek a second opinion. Employee medical removal protection benefits must comply with the California Code of Regulations, Title 8, Section 5217, (I) Medical Surveillance.

## REGULATORY REQUIREMENTS

### Regulatory Requirements

Reports or use will be issued by the OEHS Coordinator in accordance with the California Code of Regulation, Title 8, Section 5203 when applicable.

## RECORDS

### Record Retention

- Exposure records will be kept for 30 years
- Medical records will be kept for the duration of employment plus 30 years.
- Respirator fit testing records will be kept until replaced by a more recent record.
- Records are available upon request to the employee or his/her designated representative for inspection and copying.

## APPENDICES

### APPENDIX A – CADAVER ROOM ANALYSIS

As of 3-8-17 the only use or presence of formaldehyde at Mesa College is in the Cadaver Room in the Math and Science building room 314. The room currently houses 7 cadavers which are dissected by students in the Spring semester 1 day a week for a 3 hour period. The cadavers are also used for viewing demos to other anatomy students during all semesters. The program is headed and taught by 1 faculty member and is supported by one Instructional Lab Technician. The programmed temperature of the room is set at 53.1 degrees which yields an actual room temperature between 55 and 60 degrees. The air system is set to run continuously 24 hours 7 days a week.

Air flow within the room: The out take air is set up at floor level and vents are dispersed around the perimeter of the room creating a down-flow of air removal, helping to reduce exposure at working level. The dimensions of the room yields a 6573 cubic foot room, the room out take is measured at 2163 CFM. This results in a 19.74 room air exchanges per hour, which is well above the OSHA Laboratory Standard 1910 which recommends that a laboratory should produce 4-12 air changes per hour. The room is also set up as a negative pressure room which keeps air from escaping to the adjacent rooms and hallway.

Initial monitoring: Testing was done on 5-11-16 using Formaldehyde Vapor Monitors (catalog# F-50) from Advanced Chemical Sensors, Inc. The details of the monitors and test analysis are as follows:

- Sampling Medium: 2,4-DNPH Coated High-Purity Silica Gel
- Method of Analysis: High Pressure Liquid Chromatography
- Reference Method: NIOSH Method 2016

There were two 15 minute exposures completed as well as one 8 hour exposure. The results are as follows:

- Sample GK4429: 15 minute exposure resulted in 0.85 ppm
- Sample GK4428: 15 minute exposure resulted in less than 0.3 ppm
- Sample GK4430: 8 hour room exposure resulted in 0.07 ppm

## APPENDIX B: AFFIDAVIT FOR STUDY OF CADAVERIC MATERIAL

Biology 232 - Human Dissection  
San Diego Mesa College

### Affidavit for study of cadaveric material

I agree to the following stipulations and standards regarding the use and care of the cadaveric material:

- I recognize that the opportunity to view and dissect the human cadaver is a privilege and I will treat the cadavers with the utmost respect at all times.
- All materials obtained by dissection, including subcutaneous tissue will be kept in a plastic bag together with the cadaver.
- I will be respectful of the cadaver, as well as other students, and keep the face covered at all times, unless exposure is directly needed for study. I will only expose those areas of the body that are necessary for study at that time.
- I understand that the specimens have been chemically embalmed and screened for HIV, Hepatitis B, and Hepatitis C, but will still take universal precautions, including wearing gloves, protective eyewear, and protective clothing when dissecting. Additional precautions, such as masks and/or face shields will also be taken when opening body cavities or being exposed to blood or bone dust.
- I will take precautions to protect myself from injuries caused by scalpels, pins, scissors and other sharp instruments during procedures and cleanup. I will also take precautions when using the chemical wetting agent at the end of each class.
- The cadavers may only be viewed by faculty, staff and students enrolled in anatomy-related coursework at San Diego Mesa College.
- Photographs of the cadaver may ONLY be taken for strict instructional purposes, and may only be viewed by faculty, staff and students enrolled in anatomy-related coursework at San Diego Mesa College. NO facial photographs are allowed. AT NO TIME will any photographs or cadaver images be displayed publicly (i.e. to anyone not enrolled in a human anatomy & physiology/human dissection class at Mesa college) and/or electronically, both now and in the future.
- I will treat this cadaver as a precious educational resource, with respect and dignity at all times, ever mindful that this was once a living human being.

Name (please print) \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_